



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:

RETO SCHOEB

Application No.: 09/912,695

Filed: July 23, 2001

For: A MAGNETIC STIRRING
APPARATUS AND AN AGITATING
DEVICE

Customer No.: 20350

Confirmation No. 6977

Examiner: David L. Sorkin

Technology Center/Art Unit: 1723

DECLARATION OF RETO SCHOEB
UNDER RULE 132

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

Your Declarant, Reto Schoeb is the named inventor of the above entitled patent application. As a result of being the named inventor, I am familiar not only with the operation of the disclosed device but also am fully familiar with the patent application and its description. I lodge this Declaration to point out that the apparatus of French patent 2,449,473 is inoperative as applied to the disclosure of the above entitled patent application. Specifically, where I used the terms "bar tapering into a tip at the lower end", I mean a "pointed or rounded end or extremity of something" as set forth in the referenced dictionary definition. This terminology in my claims does not include "side rings 2 or a central ring 12" as set forth in French' 473, the reference that has been used to reject my claims.

By way of qualifications, I am a former member of the Electrical Engineering and Design Laboratory of the Swiss Federal Institute of Technology in Zurich, Switzerland. I was promoted in 1993 with the doctoral thesis 'Contributions to the bearingless asynchronous machine' and I have authored and coauthored numerous technical and scientific publications (see list in the appendix).

I have extensive patents granted throughout the world including the following United States Patents: US 5,708,346; US 5,808,437; US 5,917,297; US 5,939,813; US 6,053,705; US 6,100,618; US 6,130,494; US 6,171,078; US 6,181,040; US 6,220,832; US 6,222,290; US 6,236,130; US 6,249,067; US 6,278,251; US 6,297,574; US 6,351,048; US 6,355,998; US 6,365,996; US 6,386,505; US 6,485,531; US 6,559,567; US 6,634,224; US 6,637,433; US 6,640,617.

An exemplary list of publications is included as an Appendix A to this Declaration.

I respectfully request the Examiner's attention to that portion of the specification of French' 473 wherein the statement is made:

2) ensuring efficient stirring without the need for high rotational speeds which have the disadvantage of adding air to the liquid,

3) efficiently mixing liquids of high viscosity; depending upon the viscosity of the liquid to be stirred and the shape of the container, the device is produced in several different manners. [See items 2), and 3) Paragraph [0003]]

I also call the Examiner's attention to the following statement:

Body 17, to facilitate rotation, may be provided with two side rings 2 on molding, or a central ring 12, Figure 2. [See last sentence paragraph 0005].

I now respectfully direct the attention of the Examiner to my specification at paragraph [0052]

The stirring of the liquid 4 affects an increase of the liquid level 4a at the rim of the container 3, whereas the liquid level 4a falls at the center, which has a consequence that the magnetic stirring apparatus 1 sinks.

The Examiner's attention is respectfully directed to Figs. 15 and 17. In these side elevations the disposition of the surface liquids is illustrated for liquids of low viscosity. It can be seen that the level of liquid rises at the side of the container and falls at the center. With falling of the liquid level at the center, the tip becomes crucial. Specifically, the entire stirring

mechanism no longer floats, but falls until the tip contacts the bottom of the container. Upon contact of the tip with the bottom of the container, the required bearing is formed. The flat projecting part 12 of FR' 473 would be inoperative; it would cause stirring to slow or stop, defeating the purpose of the apparatus here shown.

Additionally, applicant points out that FR' 473, does not admit of operation at high rotational speeds because of other features appearing in that reference. Specifically, the large dimension of the body 17 and of this stirring element 11 and the loose coupling of this stirring element to the driver bar 1 will cause out-of-balance motion of this stirring apparatus which excludes higher rotational speeds. It is submitted that this reference teaches away from Applicant's invention.

Simply stated, my stirring apparatus is designed for rotation at high speed. When such rotation occurs, the liquid/air interface overlying the stirring apparatus at the center of the confining container becomes shallow while the depth of the liquid at the sides of the container rises. In this state, the stirring apparatus 1 contacts the bottom of the container at its bearing surface (for example see 1c in Fig 15). When contact occurs, a bearing is needed to maintain high speed rotation.

Using the teachings of FR' 473, neither side rings 2 nor a central ring 12 would provide the necessary bearing. If side rings 2 or a central ring 12 were used, the stirring apparatus would encounter increased friction upon contacting the bottom of the container. In this case, stirring at the desired speed would either not occur or stirring would stop altogether; a bearing having the design of FR' 473 would be inoperative.

In my claims I have used the terms "bar tapering into a tip at the lower end". As is set forth in Webster's Third New International Dictionary, I do mean "tip" to be defined as "the pointed or rounded end or extremity of something". Neither the side rings 2 or a central ring 12 as set forth in French' 473 are "tips" such as to be operable with my invention.

I further declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Signature of Declarant and Inventor

Reto Schoeb

Reto Schoeb

Date: 12/1/2003

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EXHIBIT A
LIST OF TECHNICAL AND SCIENTIFIC PUBLICATIONS
AUTHORED OR COAUTHORED BY DR. SCHOEB

SCHOEB, RETO:

Beiträge zur lagerlosen Asynchronmaschine

Thesis ETH No. 10417, Swiss Federal Institute of Technology, Zurich, 1993

GEMPP, THOMAS ; SCHOEB, RETO:

Design of a Bearingless Canned Motor Pump

Proc. Fifth Int. Symposium on Magnetic Bearings; Kanazawa, Japan, 1996; pp 333-338

BARLETTA, NATALE ; SCHOEB, RETO:

Principle and Application of a Bearingless Slice Motor

Proc. Fifth Int. Symposium on Magnetic Bearings; Kanazawa, Japan, 1996.

HAHN, JÜRGEN ; SCHOEB, RETO:

Five Axis Active Magnetic Bearing with Only Five Power Switches

Proc. of MAG'97, Industrial Conference on Magnetic Bearings; Alexandria, USA, 1997

GEMPP, THOMAS ; REDEMANN, CHRISTIAN ; SCHOEB, RETO:

Radial Active Magnetic Bearing for Operation with a 3-Phase Power Converter

Proc. 4th International Symposium on Magnetic Suspension Technology; Gifu, Japan, 1997

BETSCHON, FELIX ; SCHOEB, RETO:

On-Line-Adapted Vibration Control

Proc. Sixth International Symposium on Magnetic Bearings; Cambridge, USA, 1998; pp. 362 - 371

BARLETTA, NATALE ; SCHOEB, RETO:

Design of a Bearingless Bubble Bed Reactor; Engineering for Rotors Supported on Magnetic Bearings: The Process and the Tools

Proc. Sixth International Symposium on Magnetic Bearings Cambridge, USA, 1998; pp. 507 - 516

GEMPP, THOMAS ; REDEMANN, CHRISTIAN ; SCHOEB, RETO:

ACTIVE MAGNETIC BEARING WITH LARGE AIR GAP FOR OPERATION WITH A 3-PHASE POWER CONVERTER

Proc. of Int. Gas Turbine & Aeroengine Congress & Exhibition, Indianapolis, 1999

SCHOEB, RETO ; BARLETTA, NATALE ; REITER, HANS-GEORG:

A Bearingless Motor For A Left Ventricular Assist Device (LVAD)

Proc 7th International Symposium on Magnetic Bearings, ETH Zurich, 2000

HUETTNER, CHRISTIAN ; SCHOEB, RETO:

Vibration Control for a Bearingless Slic Motor of an Implantable Blood Pump

Proc. ISMST6, 6th international Symposium on magnetic suspension technology, Turin, Italy, 2001

• NEFF, MARTIN ; BARLETTA, NATALE ; SCHOEB, RETO:

Bearingless Pump System for the Semiconductor Industry

Proc. ISMST6, 6th international Symposium on magnetic suspension technology, Turin, Italy, 2001